

## WHAT IS CLAIMED IS:

Sub A. >  
1. A method for inspecting inferiority in shape of an object through an inspection image obtained from an inspection object, the object shape inferiority inspection method comprising the steps of:

5 preparing at least one reference image for judgement of shape inferiority in the inspection object considering an allowable error for shape;  
obtaining the inspection image from the inspection object;  
comparing grayscales for each one part, at least, of portions where the reference image and the inspection image mutually correspond; and  
10 judging whether inferiority in shape of the inspection object exists, based on the result of the grayscale comparison.

2. The shape inferiority inspection method of claim 1, wherein said grayscale comparison step comprises comparison of brightness values of each corresponding pixel of the inspection image and the reference image.

15 3. The shape inferiority inspection method of claim 2, wherein said reference image preparation step comprises the sub-steps of:

obtaining a range of brightness for the pixel corresponding to a range of allowable error for a position value on a boundary line, on the basis of a function relation with a change in brightness of the pixel according to a change  
20 in a position value on the boundary line of the inspection object; and

establishing and registering a minimum image whose brightness value is a minimum value of the brightness range and a maximum image whose brightness value is a maximum value of the brightness range, as the reference image.

25 4. The shape inferiority inspection method of claim 3, wherein said function relation considers existence of pixel noise.

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5. The shape inferiority inspection method of claim 3, wherein said function relation is accomplished from addition of or subtraction of the pixel noise.

6. The shape inferiority inspection method of claim 2, wherein the grayscale comparison operation for said grayscale comparison step is expressed as the following equation:

$$C(Q; U, L) = II[ l(i, j) \leq q(i, j) \leq u(i, j) ]$$

10 wherein  $C(Q; U, L)$  is a function for discriminating shape inferiority in an object, using the reference images  $U$  and  $L$ , when the inspection image  $Q$  is given,  $l(i, j)$  is a brightness value of a pixel positioned at a coordinate  $(i, j)$  of the minimum image  $L$ ,  $q(i, j)$  is a brightness value of a pixel positioned at a coordinate  $(i, j)$  of the inspection image  $Q$ , and  $u(i, j)$  is a brightness value of a pixel positioned at a coordinate  $(i, j)$  of the maximum image  $U$ .

15 7. The shape inferiority inspection method of claim 1, wherein said inspection image and said reference image are expressed in terms of grayscale.

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